Eclosion Hormone Action on the Nervous System: Intracellular Messengers and Sites of Action.
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Eclosion hormone (EH) is a 62 amino acid neuropeptide which acts directly on the nervous system of most, if not all insects, to trigger ecdysis behavior at the end of each molt. Previous studies have shown that the action of EH is mediated via the intracellular messenger, cyclic GMP (cGMP). Biochemical evidence will be presented that is consistent with our hypothesis that EH stimulates an increase in cGMP by activating a soluble guanylyl cyclase by a nitric oxide-independent mechanism which probably involves some form of lipid metabolism.

Using an antibody which recognizes cGMP in fixed tissues, I have identified one possible site of action of EH at pupal ecdysis. EH stimulates an increase in cGMP in the neurosecretory endings in the transverse nerve, a neurohemal release site in insects. Most of the characteristics of the EH-stimulated increase in cGMP immunoreactivity in the transverse nerve correspond closely to the properties of the cGMP increase measured by RIA. Some contradictions do exist however, and elucidation of these should shed new light on the intracellular messenger cascade involved in the EH-stimulated increase in cGMP.

There are suggestions from other systems that increases in cGMP in nerve terminals can modulate the release of neurotransmitters and it is tempting to speculate that one of the roles of EH at ecdysis is to regulate the release of neuropeptides from the release sites in the transverse nerve.

Source: https://www.industrydocuments.ucsf.edu/docs/qpcb0000